Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
Shri Chhatrapati Shivaji Maharaj College of Engineering, Nepti, Ahmednagar
Survey No. 162 & 163, Nepti, Nagar - Kalyan Road, Ahmednagar - 414005. Maharashtra
Phone No :- 0241 -2568383 Unipune - ID CEGA019270 Fax No: - 0241 -2568384
Email: ajmvps123@gmail.com, scsmcoe.anr@gmail.com, Website: www.scoea.org

Approved by AICTE New Delhi, Govt. of Maharashtra & Affiliated To Savitribai Phule Pune University.

2.6.2. ***Attainment of Programme outcomes and course outcomes are evaluated by the institution.***

Index- 2.6.2

AhmednagarJilha Maratha Vidya Prasarak Samaj's
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Program Specific Outcomes (PSOs)

PSO-1 : Mechanical Engineers will be able to apply concepts for design/test/implement/analyze systems in the areas related to Mechanical Engineering for Industry and Society.

PSO-2 : The Mechanical Engineering graduate will be able to work in manufacturing sector, Services sector , research area and industries in the totality sphere of operation and maintenance .

Program Outcomes (POs)

Engineering Graduates will be able to :

PO-1 : Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. [Engineering knowledge]

PO-2 : Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. [Problem analysis]

Shri Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept. A.Nagar

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PO-3 : Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. [Design/development of solutions]

PO-4 : Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions. [Conduct investigations of complex problems]

PO-5 : Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. [Modern tool usage]

PO-6 : Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. [The engineer and society]

PO-7 : Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [Environment and sustainability]

Shri Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept. Nepti, Nagar

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PO-8 : Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. [Ethics]

PO-9 : Function effectively as an individual and as a member or a leader in diverse teams and in multidisciplinary settings. [Individual and team work]

PO-10 : Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [Communication]

PO-11 : Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [Project management and finance]

PO-12 : Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [Life-long learning]

Shri Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept. Nepti, A.Nagar

Scope of the Subject in Present Scenario

Importance

Turbomachinery, in mechanical engineering, describes machines that transfer energy between a rotor and a fluid, including both turbines and compressors. While a turbine transfers energy from a fluid to a rotor, a compressor transfers energy from a rotor to a fluid.

Turbomachines is a subject which can provide excellent knowledge of Design of equipment based on the aspect of flow characteristics. It deals with various machines that involve fluid flow. As far the Industrial aspect is concerned, it is 'must-learn' subject if you are going to work in Gas Turbine Industry, Hydraulic Power plants, Centrifugal Pump manufacturing industries and all industries that involve fluid flow. It is not required if you are interested to work in Conventional Manufacturing Industry. Any device that extracts energy from or imparts energy to a continuously moving stream of fluid can be called a turbomachine. Elaborating, a turbomachine is a power or head generating machine which employs the dynamic action of a rotating element, the rotor; the action of the rotor changes the energy level of the continuously flowing fluid through the machine. Turbines, compressors and fans are all members of this family of machines

Applications

Power Generation:-

Hydro electric- Hydro-electric turbomachinery uses potential energy stored in water to flow over an open impeller to turn a generator which creates electricity

Steam turbines- Steam turbines used in power generation come in many different variations. The overall principle is high pressure steam is forced over blades attached to a shaft, which turns a generator. As the steam travels through the turbine, it passes through smaller blades causing the shaft to spin faster, creating more electricity.

Gas turbines- Gas turbines work much like steam turbines. Air is forced in through a series of blades that turn a shaft. Then fuel is mixed with the air and causes a combustion reaction, increasing the power. This then causes the shaft to spin faster, creating more electricity.

Windmills- Also known as a wind turbine, windmills are increasing in popularity for their ability to efficiently use the wind to generate electricity. Although they come in many shapes and sizes, the most common one is the large three-blade. The blades work on the same principle as an airplane wing. As wind passes over the blades, it creates an area of low and high pressure, causing the blade to move, spinning a shaft and creating electricity. It is most like a steam turbine, but works with an infinite supply of wind.

Marine

Steam turbine- Steam turbines in marine applications are very similar to those in power generation. The few differences between them are size and power output. Steam turbines on ships are much smaller because they don't need to power a whole town. They aren't very common because of their high initial cost, high specific fuel consumption, and expensive machinery that goes with it.

Gas turbines- Gas turbines in marine applications are becoming more popular due to their smaller size, increased efficiency, and ability to burn cleaner fuels. They run just like gas turbines for power generation, but are also much smaller and do require more machinery for propulsion. They are most popular in naval ships as they can be at a dead stop to full power in minutes (Kayadelen, 2013), and are much smaller for a given amount of power.

Water jet- Essentially a waterjet drive is like an aircraft turbojet with the difference that the operating fluid is water instead of air. Water jets are best suited to fast vessels and are thus used often by the military. Water jet propulsion has many advantages over other forms of marine propulsion, such as stern drives, outboard motors, shafted propellers and surface drives.

Auto

Turbochargers- Turbochargers are one of the most popular turbomachines. They are used mainly for adding power to engines by adding more air. It combines both forms of

turbomachines. Exhaust gases from the engine spin a bladed wheel, much like a turbine. That wheel then spins another bladed wheel, sucking and compressing outside air into the engine.

Superchargers- Superchargers are used for engine-power enhancement as well, but only work off the principle of compression. They use the mechanical power from the engine to spin a screw or vane, some way to suck in and compress the air into the engine.

General

Pumps- Pumps are another very popular turbomachine. Although there are very many different types of pumps, they all do the same thing. Pumps are used to move fluids around using some sort of mechanical power, from electric motors to full size diesel engines. Pumps have thousands of uses, and are the true basis to turbomachinery.

Air compressors- Air compressors are another very popular turbomachine. They work on the principle of compression by sucking in and compressing air into a holding tank. Air compressors are one of the most basic turbomachines.

Fans- Fans are the most general type of turbomachines.

Aerospace

Gas turbines- Aerospace gas turbines, more commonly known as jet engines, are the most common gas turbines.

Turbopumps- Rocket engines require very high propellant pressures and mass flow rates, meaning their pumps require a lot of power. One of the most common solutions to this issue is to use a turbopump that extracts energy from an energetic fluid flow. The source of this energetic fluid flow could be one or a combination of many things, including the decomposition of hydrogen peroxide, the combustion of a portion of the propellants, or even the heating of cryogenic propellants run through coolant jackets in the combustion chamber's walls.

Aim of the Subject

Turbomachines is a subject which can provide excellent knowledge of Design of equipment based on the aspect of flow characteristics. It deals with various machines that involve fluid flow. As far the Industrial aspect is concerned, it is 'must-learn' subject if you are going to work in Gas Turbine Industry, Hydraulic Power plants, Centrifugal Pump manufacturing industries and all industries that involve fluid flow. It is not required if you are interested to work in Conventional Manufacturing Industry.

Course Objectives:

- To provide the knowledge of basic principles, governing equations and applications of Turbomachines.
- To provide the students with opportunities to apply basic thermos-fluid dynamics flow equations to Turbomachines.
- To explain construction and working principles of Turbomachines.
- To evaluate the performance characteristics of Turbomachines.

Course Outcomes:

On completion of the course, student will be able to,

1) VALIDATE impulse moment principle using flat, inclined and curved surfaces and INVESTIGATE performance characteristics of hydraulic turbines.
2) DETERMINE performance parameters of impulse and reaction steam turbine along with discussion of nozzles, governing mechanism & losses.
3) MEASURE performance parameters of single & multistage centrifugal pumps along with discussion of cavitation and selection.
4) EXPLAIN performance parameters of centrifugal compressor along with discussion of theoretical aspects of axial compressor.

AHMEDNAGAR JILHA MARATHA VIDYA PRASARAK SAMAJ'S

Shri Chhatrapati Shivaji Maharaj College of Engineering, Nepti.

Department of Mechanical Engineering

Academic Year : 2022-23	
SUBJECT : Turbomachinery	
SEMESTER : I	**CLASS:** B. E.
STAFF : Mr. Mohnesh D. Mandhre	

Course Objectives	
1	To provide the knowledge of basic principles, governing equations and applications of Turbomachines.
2	To provide the students with opportunities to apply basic thermos-fluid dynamics flow equations to Turbomachines.
3	To explain construction and working principles of Turbomachines.
4	To evaluate the performance characteristics of Turbomachines.

Course Outcomes : **Students will be able to**	
CO1	VALIDATE impulse moment principle using flat, inclined and curved surfaces and INVESTIGATE performance characteristics of hydraulic turbines.
CO2	DETERMINE performance parameters of impulse and reaction steam turbine along with discussion of nozzles, governing mechanism & losses.
CO3	MEASURE performance parameters of single & multistage centrifugal pumps along with discussion of cavitation and selection.
CO4	EXPLAIN performance parameters of centrifugal compressor along with discussion of theoretical aspects of axial compressor.

CO-PO-PSO Mapping:

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2				2							2	2	
CO2	2	2												
CO3	2											2	2	
CO4	2	2	3									3		

1: Low 2: Moderate 3: High

Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept.

Justification of CO-PO-PSO Mapping:

Mapping		Justification
CO	**POs**	
C01	PO1	**Moderate as the students will understand the impulse momentum principle and performance of turbine**
	PO5	**Moderate as the students will know the application of turbine**
	PO12	**Moderate as the students can explore the obtained knowledge of turbine and working of turbine**
	PSO1	**Moderate as the students can explore the obtained knowledge of basic principle of Turbine**
CO2	PO1	**Moderate as the students will be able to explain turbine working and nozzle performance.**
	PO2	**Moderate as the students will be able to find losses of turbine.**
CO3	PO1	**Moderate as the students will understand the concept of Multistage centrifugal pump.**
	PO12	**Moderate as the students can explore the obtained knowledge reaction Turbibne**
	PSO1	**Moderate as the students can explore the obtained knowledge cavitation, surging**
CO4	PO1	**Moderate as the students will be able to apply the engineering fundamental knowledge to identify type of Turbine, Compressor, pump.**
	PO2	**Moderate as the students can analyze various process selection of component.**
	PO3	**Strongly as the students will be able to explain working of compressor and pump.**
	PO12	**Strongly as the students can lifelong engage themselves in the field Turbomachinery.**

Subject Teacher **Domain Coordinator** **H.O.D.**

Shri Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept. Nepti, A'nagar

HOD
Mechanical Department
Shri Chhatrapati Shivaji Maharaj College of Engineering, Nepti, Ahmednagar

Academic Year : 2022-23			
Subject Name (Code): Turbomachinery (402043) (C402)			
YEAR : B.E.	**Mechanical**	**SEMESTER :** I	**Subject Incharge:** Mr.

Course Outcomes

CO No.	Course Outcome Statements
C402.1	VALIDATE impulse moment principle using flat, inclined and curved surfaces and INVESTIGATE performance characteristics of hydraulic turbines.
C402.2	DETERMINE performance parameters of impulse and reaction steam turbine along with discussion of nozzles, governing mechanism & losses.
C402.3	MEASURE performance parameters of single & multistage centrifugal pumps along with discussion of cavitation and selection.
C402.4	EXPLAIN performance parameters of centrifugal compressor along with discussion of theoretical aspects of axial compressor.

Course Outcomes Attainment Level Matrix

For < 40

% Students	Target Average Marks (%)	Attainment Level
0	50	0
40	50	1
60	50	2
70	50	3

Course Outcome Assesment	By External Tools	By Internal Tools
	90%	10%

COURSE OUTCOME ATTAINMENT TOOLS & LEVELS

	Assessment Tools	Course Outcome			
		C402.1	C402.2	C402.3	C402.4
	(External)				
1	Theory (Th)	1.00	1.00	1.00	1.00
	(Internal)				
1	Assignment	3.00	3.00	3.00	3.00

FINAL COURSE OUTCOME ATTAINMENT SUMMARY

	C402.1	C402.2	C402.3	C402.4
External Attainment Level (Average of All External Tools)	1.00	1.00	1.00	1.00
Internal Attainment Level	3.00	3.00	3.00	3.00
Attainment Levels	1.20	1.20	1.20	1.20

COURSE OUTCOME ATTAINMENT RESULT

Course Attainment Level	1.20

Shri Chhatrapati Shivaji Maharaj College of Engineering Mechanical Dept. Nepti, Ahmednagar

Course Outcome Assessment of Turbomachinery (BE)

TOTAL STUDENTS	54

Sr. No	Name of Student	Assessment tool	External	Internal Assesment			
			Theory (TH)	C402.1	C402.2	C402.3	C402.4
		Marks Out of	100	10	10	10	10
		Exam Seat Number					
1	Adamane Rahul Annasaheb	B191010801	43	6	9	8	9
2	Adhav Aniket Madhukar	B191010802	50	5	8	9	7
3	Akolkar Somesh Dilip	B191010803	52	2	8	9	7
4	Aware Abhishek Dnyaneshwar	B191010804	44	4	9	10	7
5	Bagwan Shoyeb Yusuf	B191010805	44	6	10	9	7
6	Bansode Amit Sudhakar	B191010806	43	7	9	9	4
7	Bhand Yashwant Vitthal	B191010807	47	5	9	7	6
8	Chaudhari Deepak Bhimrao	B191010808	50	7	8	6	7
9	Darekar Vijay Gorakh	B191010809	48	5	9	6	4
10	Daspute Jagdish Shivaji	B191010810	47	6	7	5	6
11	Dendage Vaibhav Sanjay	B191010811	43	8	6	9	9
12	Dhakane Rahul Babasaheb	B191010812	50	5	7	10	9
13	Diwate Sujit Sahebrao	B191010813	50	5	6	10	5
14	Gade Rohit Arun	B191010814	62	9	9	9	8
15	Gaikwad Ashwini Gorakshanath	B191010815	50	3	9	10	6
16	Gawali Harshad Bhausaheb	B191010816	35	4	9	6	6
17	Gawali Manesh Dhondibhau	B191010817	47	5	9	5	8
18	Gawande Sandesh Vishwambar	B191010818	50	7	10	8	8
19	Ghayal Pratap Shashikant	B191010819	60	6	8	8	6
20	Gore Shekhar Sunil	B191010820	35	6	9	8	7
21	Hande Amit Gokul	B191010821	51	7	8	8	6
22	Hivrale Suresh Anandrao	B191010822	50	7	8	8	6
23	Jadhav Kamlesh Sudhakar	B191010823	37	8	9	8	6
24	Jadhav Sagar Baban	B191010824	51	9	9	10	8
25	Jangale Shubham Rajendra	B191010825	53	9	9	8	8
26	Kadus Sanket Dilip	B191010826	58	5	8	7	6
27	Kardile Rushikesh Subhash	B191010827	60	4	9	9	7
28	Kasar Supriya Popat	B191010828	50	7	9	5	5
29	Katkar Vivek Babasaheb	B191010829	50	6	8	7	9
30	Khan Aawez Feroz	B191010830	27	5	4	6	6
31	Kotkar Vishal Lahanu	B191010831	58	7	9	4	8
32	Kshetre Rakesh Balu	B191010832	58	2	7	8	7
33	Landge Abhishek Abhaykumar	B191010833	56	6	9	10	6
34	Lokhande Pravin Dagadu	B191010834	58	7	4	8	6
35	Magar Sanket Sundarrao	B191010835	15	9	7	7	3
36	Marathe Shubham Sanjay	B191010836	59	3	9	5	6
37	Moholkar Ishwar Balasaheb	B191010837	52	5	8	6	10
38	Mungase Sonali Balakrishna	B191010838	43	8	8	7	8
39	Nagargoje Dhananjay Ganesh	B191010839	50	3	4	7	8
40	Nandurkar Janhavi Vijay	B191010840	50	3	10	4	9
41	Pande Sonu Rajesh	B191010841	AB	7	8	7	6
42	Pardeshi Anuj Bharatsingh	B191010842	58	5	4	3	6
43	Pathan Farukh Chandkha	B191010843	58	7	8	3	8

44	Pise Sanket Paraji	B191010844	45	6	7	6	9
45	Sayyed Almoiz Fazlureheman	B191010845	51	4	9	6	7
46	Shaikh Bilal Haroon	B191010846	50	9	9	8	6
47	Shinde Ganesh Namdev	B191010847	50	6	8	4	5
48	Suryawanshi Nilesh Ravi	B191010848	55	5	8	4	3
49	Thombare Nilesh Pandurang	B191010849	58	7	9	7	7
50	Unhale Saurav Maruti	B191010850	45	9	7	4	6
51	Waman Sunil Jankiram	B191010851	50	8	8	6	5
52	Wani Deepak Bhaskar	B191010852	53	5	8	8	3
53	Wavhel Chetan Shivaji	B191010853	51	5	9	7	6
54	Waybhase Amar Popar	B191010854	53	5	7	6	8

		Assesm	Internal Assesment			
		Theory (TH)	C402.1	C402.2	C402.3	C402.4
No of Studetns scoring above 50		32	44	50	47	49
% of Studetns scoring above 50		59.26	81.48	92.59	87.04	90.74
Levels Attained		1.00	3.00	3.00	3.00	3.00

Shri Chhatrapati Shivaji Maharaj College of Engineering ★ Mechanical Dept. ★ Nepti,A.Nagar

HOD
Mechanical Department
Shri Chhatrapati Shivaji Maharaj College
of Engineering, Nepti, Ahmednagar

			Internal Assesment (Assignment Question wise)												
			C402.1				C402.2			C402.3			C402.4		
			Q.1	Q.2	Q.3	Total	Q.4	Q.1	Total	Q.2	Q.3	Total	Q.1	Q.2	Total
Sr. No	Name of Student	Exam Seat	5	2	3	10	5	5	10	5	5	10	5	5	10
1	Adamane Rahul Annasaheb	B191010801	3	1	2	6	5	4	9	4	4	8	5	4	9
2	Adhav Aniket Madhukar	B191010802	2	1	2	5	4	4	8	4	5	9	4	3	7
3	Akolkar Somesh Dilip	B191010803	1	0	1	2	4	4	8	5	4	9	5	2	7
4	Aware Abhishek Dnyaneshwar	B191010804	1	1	2	4	4	5	9	5	5	10	4	3	7
5	Bagwan Shoyeb Yusuf	B191010805	2	1	3	6	5	5	10	5	4	9	5	2	7
6	Bansode Amit Sudhakar	B191010806	4	1	2	7	4	5	9	4	5	9	3	1	4
7	Bhand Yashwant Vitthal	B191010807	2	2	1	5	5	4	9	4	3	7	2	4	6
8	Chaudhari Deepak Bhimrao	B191010808	4	1	2	7	4	4	8	4	2	6	2	5	7
9	Darekar Vijay Gorakh	B191010809	3	1	1	5	5	4	9	4	2	6	1	3	4
10	Daspute Jagdish Shivaji	B191010810	3	1	2	6	3	4	7	4	1	5	4	2	6
11	Dendage Vaibhav Sanjay	B191010811	4	2	2	8	2	4	6	5	4	9	5	4	9
12	Dhakane Rahul Babasaheb	B191010812	2	1	2	5	2	5	7	5	5	10	4	5	9
13	Diwate Sujit Sahebrao	B191010813	1	1	3	5	1	5	6	5	5	10	2	3	5
14	Gade Rohit Arun	B191010814	5	2	2	9	4	5	9	4	5	9	3	5	8
15	Gaikwad Ashwini Gorakshanath	B191010815	1	1	1	3	5	4	9	5	5	10	2	4	6
16	Gawali Harshad Bhausaheb	B191010816	2	0	2	4	4	5	9	4	2	6	1	5	6
17	Gawali Manesh Dhondibhau	B191010817	4	0	1	5	5	4	9	4	1	5	4	4	8
18	Gawande Sandesh Vishwambar	B191010818	5	0	2	7	5	5	10	4	4	8	5	3	8
19	Ghayal Pratap Shashikant	B191010819	3	1	2	6	4	4	8	4	4	8	3	3	6
20	Gore Shekhar Sunil	B191010820	3	1	2	6	5	4	9	4	4	8	5	2	7
21	Hande Amit Gokul	B191010821	4	1	2	7	4	4	8	4	4	8	4	2	6
22	Hivrale Suresh Anandrao	B191010822	3	1	3	7	4	4	8	4	4	8	5	1	6
23	Jadhav Kamlesh Sudhakar	B191010823	5	1	2	8	5	4	9	4	4	8	2	4	6
24	Jadhav Sagar Baban	B191010824	5	1	3	9	5	4	9	5	5	10	3	5	8
25	Jangale Shubham Rajendra	B191010825	5	2	2	9	5	4	9	3	5	8	4	4	8
26	Kadus Sanket Dilip	B191010826	2	2	1	5	4	4	8	2	5	7	4	2	6
27	Kardile Rushikesh Subhash	B191010827	1	1	2	4	4	5	9	5	4	9	5	2	7
28	Kasar Supriya Popat	B191010828	4	1	2	7	4	5	9	3	2	5	4	1	5
29	Katkar Vivek Babasaheb	B191010829	4	0	2	6	5	3	8	4	3	7	5	4	9
30	Khan Aawez Feroz	B191010830	4	0	1	5	3	4	7	5	1	6	4	2	6
31	Kotkar Vishal Lahanu	B191010831	5	0	2	7	5	4	9	4	0	4	5	3	8
32	Kshetre Rakesh Balu	B191010832	1	1	0	2	3	4	7	4	4	8	3	4	7
33	Landge Abhishek Abhaykumar	B191010833	4	1	1	6	4	5	9	5	5	10	2	4	6
34	Lokhande Pravin Dagadu	B191010834	4	1	2	7	5	4	9	5	3	8	2	4	6
35	Magar Sanket Sundarrao	B191010835	5	1	3	9	3	4	7	3	4	7	1	2	3
36	Marathe Shubham Sanjay	B191010836	2	0	1	3	5	4	9	3	2	5	4	2	6
37	Moholkar Ishwar Balasaheb	B191010837	2	1	2	5	4	4	8	2	4	6	5	5	10
38	Mungase Sonali Balakrishna	B191010838	4	1	3	8	5	3	8	5	2	7	4	4	8
39	Nagargoje Dhananjay Ganesh	B191010839	2	1	0	3	4	4	8	4	3	7	4	4	8
40	Nandurkar Janhavi Vijay	B191010840	1	1	1	3	5	5	10	2	2	4	4	5	9
41	Pande Sonu Rajesh	B191010841	5	1	1	7	4	4	8	3	4	7	2	4	6
42	Pardeshi Anuj Bharatsingh	B191010842	2	1	2	5	5	5	10	1	2	3	2	4	6
43	Pathan Farukh Chandkha	B191010843	4	0	3	7	5	3	8	0	3	3	3	5	8
44	Pise Sanket Paraji	B191010844	2	2	2	6	3	4	7	4	2	6	4	5	9
45	Sayyed Almoiz Fazlureheman	B191010845	1	1	2	4	4	5	9	5	1	6	4	3	7
46	Shaikh Bilal Haroon	B191010846	5	2	2	9	5	4	9	4	4	8	4	2	6
47	Shinde Ganesh Namdev	B191010847	3	1	2	6	3	5	8	3	1	4	3	2	5
48	Suryawanshi Nilesh Ravi	B191010848	2	1	2	5	4	4	8	2	2	4	2	1	3
49	Thombare Nilesh Pandurang	B191010849	4	1	2	7	5	4	9	4	3	7	3	4	7
50	Unhale Saurav Maruti	B191010850	5	2	2	9	3	4	7	2	2	4	3	3	6
51	Waman Sunil Jankiram	B191010851	4	2	2	8	5	3	8	2	4	6	3	2	5
52	Wani Deepak Bhaskar	B191010852	2	1	2	5	4	4	8	4	4	8	2	1	3
53	Wavhel Chetan Shivaji	B191010853	1	2	2	5	5	4	9	4	3	7	4	2	6
54	Waybhase Amar Popar	B191010854	1	1	3	5	3	4	7	3	3	6	5	3	8